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GERMAN DELEGATION

COCOM DOC. 4120

Paris, September 3, 1960

MEMORANDUM BY THE GERMAN DELEGATION  
ON THE EXPORT TO HUNGARY OF AN ELECTRONIC,  
PROGRAMME-STEERED COMPUTER

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The German authorities have received an application to license the export to Hungary of

1 electronic, programme-steered computer,  
produced by ZUSE KG, type Z 22,  
value US \$ 82.960.--.

This machine is covered by item 1565 as it is adapted for scientific and technical calculations and not only for commercial and statistical uses. Nowadays however, the type Z 22 is no longer employed for strategic calculations because it works much too slowly. Attention is drawn to Cocon Doc. 3715.65/2 referring to a statement of the US that in case of a redefinition of item 1565 the speed of the computer should be the determining criterion.

The Z 22 is a digital computer, the main store of which is an exceptionally slow-operating magnetic storage drum-type machine with a storage-capacity of 8192 words. It has also an exceptionally small magnetic core memory for 25 words only with secondary functions as a supplement to the arithmetic unit.

The capacity of the machine is determined by the very slowly operating magnetic drum. The small magnetic core memory for 25 words serves to note down the intermediate solutions only but has no significant influence on the total capacity of the installation.

The quickness of the operating depends on the clock-frequency as well as on the cycle-time.

The Z 22 has a clock-frequency of 140 kc/s whereas modern instruments have a clock-frequency of 20 Mc/s and the latest machines 100 Mc/s even.

The Z 22 has a cycle-time of 5 milli-seconds for the storage drum and of 310 micro-seconds for the small core memory.

The input-output devices of the Z 22 work with a quickness of 100 or

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75 Baud and can only obtain a higher velocity with special additional instruments.

The computer does not contain any transistors but only electronic-valves and diodes. This sort of machines is inferior to the instruments provided with transistors as to the proof against shocks and the duration.

The machine shall be installed for teaching purposes in the Technical College of Budapest. It will be installed by employees of the constructing firm. The conditions of delivery will stipulate that during the year of guarantee the four necessary revisions will be executed by specialists of the producer. An ulterior increase of the quickness of calculations and an improvement of the cycle-time of the storage is impossible due to the technical and logical construction of the machine.

In view of the civilian-end-use of the machine the German authorities wish to grant the licence and trust that no objections will be raised against this export. The German Delegation would appreciate to have the views of governments at an early date.

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